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# Methotrexate for the treatment of generalized vitiligo

*Dear Editor*

Vitiligo is a disorder of depigmentation resulting from the destruction of melanocytes in the epidermis. The incidence of vitiligo is 0.5–2% worldwide (Dell'anna and Picardo, 2006). Although the exact etiology of vitiligo remains unclear, autoimmunity is currently recognized as one of the most likely pathogenic mechanisms (Kemp et al., 2001). Moreover, some studies provided evidence that in vitiligo skin a significantly higher expression of TNF-α was detected, compared with perilesional, non-lesional and healthy skin (Birol et al., 2006). Thus, it seems that TNF-α is a key step in the development of vitiligo (Birol et al., 2006).

Methotrexate (MTX), is an antimetabolite and antifolate drug. Methotrexate (MTX), is an antimetabolite and antifolate drug. It is used in the treatment of cancer, autoimmune diseases, ectopic pregnancy, and for the induction of medical abortions (Dell'anna and Picardo, 2006). It acts by inhibiting the metabolism of folic acid. It is used as a treatment for some autoimmune diseases including: psoriasis and psoriatic arthritis, Crohn's disease, and rheumatoid arthritis (Dell'anna and Picardo, 2006). It has also been used for multiple sclerosis (Dell'anna and Picardo, 2006).

It was shown in one study that methotrexate treatment results in a decreased number of T cells capable of TNFα production, whereas the number of T cells producing IL-10 after polyclonal activation increased (Rudwaleit et al., 2000). Methotrexate possibly suppresses TNFα-induced NF-κB activation (Majumdar and Aggarwal, 2001).

There is only one case report in the literature about the effect of MTX on vitiligo. In that report, a 54-year-old female patient with a 10-year history of rheumatoid arthritis presented with a 6 month history of rapidly progressing vitiligo lesions over trunk and limbs. She was started on a once weekly dose of 7.5 mg methotrexate. At three months follow up after starting methotrexate her arthritis had improved and it was noticed that she had stopped developing new depigmented lesions, The rapid spread of depigmentation had ceased and there was considerable repigmentation of the existing vitiligo lesions (Sandra et al., 1998).

Methotrexate has been reported to be useful in other autoimmune disorders like pemphigus (Lever and Goldberg, 1969). Hence in rapidly progressing unstable vitiligo short courses of methotrexate may help in stopping progress and bringing the disease process under control.

Based on this, we conducted a pilot prospective study to evaluate the effects of MTX on vitiligo. All patients signed an informed consent and the study protocol was approved by the local ethics committee.

Six vitiligo patients with an average age of 29 years were recruited. Full details of patients are shown in Table 1. All were having vitiligo involving more than 6% of the body surface area. Pre-treatment blood tests were normal (full blood count, biochemistry including liver function test and chest X-ray). Liver ultrasound was done to assess baseline liver status.

All the patients received MTX for 6 months and assessed at 0, 1, 3, 6 and 9 months. All the six patients received 25 mg dose per week with folic acid 5 mg daily except the day on which they took MTX. Clinical and photographic assessments revealed no change in their vitiligo lesions. No patient withdrew from the course and none of the patient discontinued the therapy. The Methotrexate therapy was well tolerated and no side effect was noted. Follow up laboratory investigations, chest X ray and liver ultrasound were normal.

To date, we did not come across in the literature, any study done on MTX use in vitiligo patients except the case report mentioned above (Sandra et al., 1998).

It is true that this is a small uncontrolled pilot study and further controlled trials are probably warranted to evaluate the use of methotrexate in vitiligo, notwithstanding the fact that no clinical improvement in vitiligo with the use of methotrexate was evident for the first time in our study.

## References

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**Table 1** Summary of six vitiligo patients treated by Methotrexate.

| Patient No. | Gender | Age (years) | Duration of vitiligo (years) | Body surface area (BSA)% | Accompanying disorder | Location of vitiligo lesion treated | Six months post treatment outcome |
|---|---|---|---|---|---|---|---|
| 1 | Male | 31 | 16 | 7 | None | Face, upper and lower extremities | No change |
| 2 | Male | 14 | 12 | 11 | None | Face, abdomen, upper and lower extremities | No change |
| 3 | Male | 17 | 2 | 6 | None | Face, back, upper and lower extremities | No change |
| 4 | Male | 23 | 16 | 14 | None | Face, back, upper and lower extremities | No change |
| 5 | Female | 46 | 10 | 13 | None | Chest, upper and lower extremities, fingers | No change |
| 6 | Female | 25 | 8 | 12 | None | Face, upper and lower extremities | No change |

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